

**ALASKA DEPARTMENT OF NATURAL RESOURCES**

**Water Resources Section**

Review and Determination & Public Interest Finding

TO: Tom Barrett

DATE: April 26, 2021

FROM: Kindra Geis/Henry Brooks

FILE INFORMATION: LAS 29168, LAS 29169,  
LAS 29170, LAS 29171,  
LAS 29172, LAS 29173,  
LAS 29174, LAS 29175,  
LAS 29176, LAS 29177,  
LAS 29178, & LAS 31477  
Donlin Gold, LLC  
Water Rights

The subject water right case file has been reviewed for accuracy and conformance with statutes and regulations. The following comments, recommendations, or corrections are presented.

**Project Description:**

Donlin Gold, LLC (Donlin Gold) is proposing the development of an open pit, hardrock gold mine located 277 miles (446 km) west of Anchorage, 145 miles (233 km) northeast of Bethel, and 10 miles (16 km) north of the village of Crooked Creek. The proposed Donlin Gold project includes land leased from Calista Corporation (Calista), an Alaska Native Claims Settlement Act (ANCSA) regional corporation that holds the subsurface (mineral) estate for ANCSA lands in the region. In addition to the subsurface estate, Calista owns some surface estate lands in the lease area. A Surface Use Agreement with The Kuskokwim Corporation, an ANCSA village corporation, grants surface use rights. (SRK Consulting (U.S.), Inc., 2016). Water uses required for the Donlin Gold project include water withdrawals, impoundments, and diversions for mining and milling uses. These uses are described below as they pertain to each of the listed case files.

**Public and Agency Notice (11 AAC 93.080 and AS 46.15.133):**

- Agency notice dated: November 30, 2020.
- Deadline for agency notice: December 15, 2020.
- 1<sup>st</sup> One day newspaper ad in Anchorage Daily News: November 30, 2020
- Public notice dated: November 30, 2020.
- Deadline for public notice: December 15, 2020.
- ADF&G Habitat: Email dated December 15, 2020, from Maria Wessel (ADF&G) to Jenny March (ADNR) stated 'ADF&G has no objections to the water use request and has worked with Donlin Gold, LLC to develop and Aquatic Resources Monitoring Plan to address any impacts the water use may have on fish habitat within the area.'. No additional comments received during the 2<sup>nd</sup> Public Notice
- Alaska Department of Environmental Conservation: No comments received during the 1<sup>st</sup> Agency Review.

**NOTE:** Due to concerns regarding the legal language used in the first notice as well as concerns about the ability to review the subject applications within the statutory defined

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timeframe, a 2<sup>nd</sup> Public Notice was run in order to address these concerns. The 2<sup>nd</sup> Notice clearly stated that all comments and objections previously submitted to the Department of Natural Resources during the 1<sup>st</sup> Public Notice will be considered by the department after the 2<sup>nd</sup> Notice period ends.

- 2<sup>nd</sup> One day newspaper ad in Anchorage Daily News: March 11, 2021
- Second public notice dated: March 11, 2021
- Deadline for second public notice: March 26, 2021
- A 2<sup>nd</sup> Agency Review was not conducted concurrently with the 2<sup>nd</sup> Public Notice as the agencies previously noticed concurrently with the 1<sup>st</sup> Public Notice either responded at that opportunity or did not respond at all and have already issued applicable permits for the project.
- Public Comments were received during both the first and second notices: Comments during the 1<sup>st</sup> Notice were received from 14 individuals, and 2 Non-Government Organizations, (Earth Justice and Cook Inletkeeper). Earth Justice submitted comments on behalf of 13 Alaskan Native Villages and Village Tribal Councils located between 109 miles to 245 miles from the Donlin Project area. The comments from the 13 Alaskan Native Villages were technically part of 2018 comments regarding the Federal Environmental Impact Assessment as well as the Army Corps of Engineers Permits for the Donlin Project but were submitted by Earth Justice for consideration during the 1<sup>st</sup> Notice. Earth Justice re-stated and re-submitted the same comments during the 2<sup>nd</sup> Notice. Cook Inletkeeper also submitted comments during both the 1<sup>st</sup> and 2<sup>nd</sup> Notices, but the respective comments were different in the nature between the 1<sup>st</sup> and 2<sup>nd</sup> Notices. Public Comments were also received from Calista Corporation, Crooked Creek Tribal Council, (Village of Crooked Creek) and Donlin Gold.
- Summary of Comments received during the 1<sup>st</sup> and 2<sup>nd</sup> Notice: 14 individuals and 2 Non-Government Organizations oppose the Donlin Gold Project while the village nearest to the project as well as the Regional Alaskan Native Corporation support the project.
  - None of the parties making comments opposing the project have water rights that could be affected by issuing permits to appropriate water for the Donlin Mine project (AS 46.15.133).
  - The single party commenting that does have a water right, the Village of Crooked Creek, LAS 26474, acknowledges in their comments that their subsurface water right is unlikely to be affected by the proposed water use by Donlin Mine and that otherwise they have no objections to the proposed appropriations.
- Overall, commenters opposing the project stated that they:
  - Disapproved of Non-State corporate entities accessing Alaskan natural resources.
  - Impacts to fish outweigh any benefits from the mine.
  - Disapprove of the potential impacts to the Crooked Creek watershed
  - 1 commenter was concerned about impacts similar to that of the Zortman-Landusky Mine in Montana occurring here in Alaska.
- Summary of Earth Justice and Cook Inletkeeper Comments received during the 1<sup>st</sup> and 2<sup>nd</sup> Notice: Overall, Earth Justice and Cook Inletkeeper stated that they:
  - Disagree that the State has accurately used the appropriate statutes in accepting and considering the Donlin Water Right Applications.
  - Believe that DNR can disregard or overrule issued ADF&G Permits
  - Disapprove of the potential impacts to the Crooked Creek watershed

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- Assert that AS 46.15 addresses cumulative impacts in the same manner that Federal Law does.

**NOTE:** All submitters will receive written responses from the Department regarding their comments once a decision on the application is reached.

**Alaska Water Law Applicable to this decision:**

**The Alaska State Constitution**

Article 1; Section 1; Article 1; Section 2; Article 8; Section 1; Article 8; Section 2; Article 8; Section 3; Article 8; Section 13; Article 8; Section 14; Article 8; Section 15; Article 8; Section 16; Article 8; Section 17;

**Alaska Statute 46.15.**

Sections 46.15.030; 46.15.040; 46.15.050; 46.15.080; 46.15.100; 46.15.110; 46.15.133, 46.15.140; and 46.15.260.

**Alaska Administrative Code 11 AAC 93**

11 AAC 93.120 (b)(5)(c )(d)(e)(3)(4)(5)(f)(g)(h)(i); 11 AAC 93.970 (1); 11 AAC 93.970 (4); 11 AAC 93.970 (8); 11 AAC 93.970 (9); 11 AAC 93.970 (10); 11 AAC 93.970 (11); 11 AAC 93.970 (12); 11 AAC 93.970 (13); 11 AAC 93.970 (17); 11 AAC 93.970 (20); 11 AAC 93.970 (21); 11 AAC 93.970 (22); 11 AAC 93.970 (23); 11 AAC 93.970 (24); 11 AAC 93.970 (25); 11 AAC 93.970 (26); 11 AAC 93.970 (27); 11 AAC 93.970 (28); 11 AAC 93.970 (29); 11 AAC 93.970 (30); 11 AAC 93.970 (31); 11 AAC 93.970 (32); 11 AAC 93.970 (33); 11 AAC 93.970 (34); 11 AAC 93.970 (36); 11 AAC 93.970 (37) and 11 AAC 93.970 (38).

**Fundamentals of the Water Right Process**

1. An application is submitted, accepted and issued a case file number;
2. If required, Public Notice is conducted and comments received;
3. The application is adjudicated, (with comments and objections considered);
4. If successful, a Permit to Appropriate Water is issued for the time period established to the proposed use, in the quantities requested.
5. Upon completion of Permit Period, if the project is successful and the water in active use for the specified use, a Certificate of Appropriation is issued for the actual use with no expiration date for as long as the project and water use are ongoing.

The Permit Phase of any water right is intended to allow the development to be explored pursuant to whatever permits, authorizations and approvals the project has when the Permit is issued.

**Rights of a Prior Appropriator (AS 46.15.080(a)(1)):**

A search of the Department of Natural Resource's publicly accessible and internally available databases was conducted to determine the presence of water users for the sources of water requested in the Applications for Water Rights. This search included temporary water use authorizations (TWUAs) (802) and prior appropriators (801) including Reservations of Water (803), Permits to Appropriate, and Certificates of Appropriation. In addition, a search was conducted for Potential Hazardous Sites (901). The land information search for Case Category 801, 802 and 803 for water and Case Category 901 for Potential Hazardous Sites was conducted within the following:

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- All Sections, Township 24 North, Range 47 West, Seward Meridian: No prior users.
- All Sections, Township 24 North, Range 48 West, Seward Meridian: No prior users.
- All Sections, Township 24 North, Range 49 West, Seward Meridian: No prior users.
- All Sections, Township 24 North, Range 50 West, Seward Meridian: No prior users.
- All Sections, Township 23 North, Range 47 West, Seward Meridian: No prior users.
- All Sections, Township 23 North, Range 48 West, Seward Meridian: There were two (2) TWUAs in Issued status (F2019-084 and F2019-105) both TWUAs are for the Donlin Gold Mine. Water use activities authorized under these TWUAs is for exploration activities, pump tests, and construction of ice roads.
- All Sections, Township 23 North, Range 49 West, Seward Meridian: There were six (6) TWUAs in Issued status (F2019-084, F2019-105, F2020-016, F2020-017, F2020-018, and F2020-019). Water use activities authorized under F2019-084 and F2019-105 is for exploration activities, pump tests, and construction of ice roads. The other four (4) TWUAs are for the Donlin Gold Exploration Project and water use activities are for exploration activities.
- All Sections, Township 23 North, Range 50 West, Seward Meridian: No prior users.
- All Sections, Township 22 North, Range 47 West, Seward Meridian: No prior users.
- All Sections, Township 22 North, Range 48 West, Seward Meridian: There were two (2) TWUAs in Issued status (F2019-084 and F2019-105) both TWUAs are for the Donlin Gold Mine. Water use activities authorized under these TWUAs is for exploration activities, pump tests, and construction of ice roads.
- All Sections, Township 22 North, Range 49 West, Seward Meridian: There are four (4) TWUAs in Issued status (F2017-041, F2019, 084, F2019-105, and F2020-018). Water use activities authorized under F2017-041 are for camp water uses associated with the Donlin Gold Exploration Project. Water use activities authorized under F2019-084 and F2019-105 is for exploration activities, pump tests, and construction of ice roads. TWUA F2020-018 is for the Donlin Gold Exploration Project and water use activities are for exploration activities.
- All Sections, Township 22 North, Range 50 West, Seward Meridian: No prior users.
- All Sections, Township 21 North, Range 47 West, Seward Meridian: There was one (1) prior user (LAS 28344). LAS 28344 is an active Certificate of Appropriation for an Instream Reservation for the Kuskokwim River. LAS 28344 water uses are for the protection of fish and wildlife habitat, migration, and propagation. Application for Water Right case file LAS 29171 is the only case file, discussed in this Review and Determination, that has requested water uses from the Kuskokwim River. The planned water withdrawals are for seasonal use (May – October) with a total estimated maximum use of 637 AFY (568,677 gpd or 0.9 cfs).

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- All Sections, Township 21 North, Range 48 West, Seward Meridian: There was one (1) Certificate (LAS 28344) one Permit to appropriate (LAS 26474), and one (1) TWUA (A2020-06). LAS 28344 is an active Certificate of Appropriation for an Instream Reservation for the Kuskokwim River. LAS 28344 water uses are for the protection of fish and wildlife habitat, migration, and propagation. Application for Water Right case file LAS 29171 is the only case file, discussed in this Review and Determination, that has requested water uses from the Kuskokwim River. The planned water withdrawals are for seasonal use (May – October) with a total estimated maximum use of 637 AFY (568,677 gpd or 0.9 cfs). Permit to appropriate LAS 26474 water uses is for water supply to the village of Crooked Creek. The water source for Crooked Creek is a drilled well approximately 65 feet in depth. Water withdrawal activities authorized are for a maximum daily withdrawal of 7,000 gpd or 7.84 AFY. The nearest water uses proposed by Donlin Gold, LLC is located approximately 5.0 miles air miles southwest of the Crooked Creek Village drilled well water source. Issued TWUA A2020-06 is for the Crooked Creek Airport improvement projects. The water sources for TWUA A2020-06 are Crooked Creek, an unnamed stream, and the Kuskokwim River.
- All Sections, Township 21 North, Range 49 West, Seward Meridian: No prior users.
- All Sections, Township 21 North, Range 50 West, Seward Meridian: No prior users.
- All Sections, Township 20 North, Range 48 West, Seward Meridian: There was one (1) prior user (LAS 28344). LAS 28344 is an active Certificate of Appropriation for an Instream Reservation for the Kuskokwim River. LAS 28344 water uses are for the protection of fish and wildlife habitat, migration, and propagation. The planned water withdrawals are for seasonal use (May – October) with a total estimated maximum use of 637 AFY (568,677 gpd or 0.9 cfs).
- All Sections, Township 20 North, Range 49 West, Seward Meridian: There was one (1) prior user (LAS 28344). LAS 28344 is an active Certificate of Appropriation for an Instream Reservation for the Kuskokwim River. LAS 28344 water uses are for the protection of fish and wildlife habitat, migration, and propagation. The planned water withdrawals are for seasonal use (May – October) with a total estimated maximum use of 637 AFY (568,677 gpd or 0.9 cfs).
- All Sections, Township 20 North, Range 50 West, Seward Meridian: No prior users.
- All Sections, Township 20 North, Range 51 West, Seward Meridian: No prior users.
- All Sections, Township 19 North, Range 48 West, Seward Meridian: No prior users.
- All Sections, Township 19 North, Range 49 West, Seward Meridian: There was one (1) prior user (LAS 28344). LAS 28344 is an active Certificate of Appropriation for an Instream Reservation for the Kuskokwim River. LAS 28344 water uses are for the protection of fish and wildlife habitat, migration, and propagation. Application for Water Right case file LAS 29171 is the only case file, discussed in this Review and Determination, that has requested water uses from the Kuskokwim River. The planned water withdrawals are for seasonal use (May – October) with a total estimated maximum use of 637 AFY (568,677 gpd or 0.9 cfs).

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The Donlin Gold Mine Application for Water Right case file LAS 29171 is the sole case file that has requested water uses from the Kuskokwim River. Donlin's planned water withdrawals are for seasonal use (May – October) with a total estimated maximum use of 637 AFY (568,677 gpd or 0.9 cfs). Based on the flow data below, Donlin's requested water use of a maximum withdrawal rate of 0.9 cfs will have a de-minimis impact for the purposes of this review. The total use of 0.9 cfs being requested is well below the minimum remaining flows for the appropriation (the lowest being 800 cfs in February). If approved, Donlin would be conducting water withdrawals May 1<sup>st</sup> through October 31<sup>st</sup> for fire suppression training as well as dust control and compaction for construction and maintenance on the road supporting the Jungjuk Port Site.

The Kuskokwim River has stream flow data from the USGS. Per the Final Decision for the IFR LAS 28344, the available water, after the reservation flows for the river are removed, are depicted in the table below:

#### Kuskokwim River Flow Data

Time Period	Mean Discharge (cfs)	Granted Reservation Flows (cfs)	Remaining Flows for Appropriation (cfs)	Remaining Flows for Appropriation (gpd)	Requested Withdrawal for LAS 29171 (gpd)	Percentage Impact to remaining flows
January	13,200	11,750	1,450	937,094,400	0.00	0.00%
February	11,700	10,900	800	517,017,600	0.00	0.00%
March	10,700	9,700	1,000	646,272,000	0.00	0.00%
April 1-15	11,300	10,000	1,300	840,153,600	0.00	0.00%
April 16-23	14,800	11,000	3,800	2,455,833,600	0.00	0.00%
April 24-30	26,000	12,000	14,000	9,047,808,000	0.00	0.00%
May 1-7	56,800	24,000	32,800	21,197,721,600	568,677.00	0.00%
May 8-15	78,900	56,000	22,900	14,799,628,800	568,677.00	0.00%
May 16-23	93,200	75,000	18,200	11,762,150,400	568,677.00	0.00%
May 24-31	96,400	82,000	14,400	9,306,316,800	568,677.00	0.01%
June 1-7	94,700	72,000	22,700	14,670,374,400	568,677.00	0.00%
June 8-15	82,400	67,000	15,400	9,952,588,800	568,677.00	0.01%
June 16-23	74,600	63,000	11,600	7,496,755,200	568,677.00	0.01%
June 24-30	68,800	61,000	7,800	5,040,921,600	568,677.00	0.01%
July	66,900	59,000	7,900	5,105,548,800	568,677.00	0.01%
August 1-15	71,500	59,000	12,500	8,078,400,000	568,677.00	0.01%
August 16-31	76,900	61,000	15,900	10,275,724,800	568,677.00	0.01%
September 1-7	73,400	60,000	13,400	8,660,044,800	568,677.00	0.01%
September 8-15	67,500	56,000	11,500	7,432,128,000	568,677.00	0.01%
September 16-23	66,600	53,000	13,600	8,789,299,200	568,677.00	0.01%
September 24-30	62,900	49,000	13,900	8,983,180,800	568,677.00	0.01%
October 1-7	57,700	45,000	12,700	8,207,654,400	568,677.00	0.01%
October 8-15	51,100	41,000	10,100	6,527,347,200	568,677.00	0.01%
October 16-23	41,200	35,000	6,200	4,006,886,400	568,677.00	0.01%
October 24-31	33,700	29,000	4,700	3,037,478,400	568,677.00	0.02%
November 1-7	26,400	23,200	3,200	2,068,070,400	0.00	0.00%
November 8-15	23,400	21,000	2,400	1,551,052,800	0.00	0.00%
November 16-30	19,900	17,500	2,400	1,551,052,800	0.00	0.00%
December	15,800	14,200	1,600	1,034,035,200	0.00	0.00%

Due to the current existing water uses occurring without any reported water shortages, water use is considered de minimis, (less than 0.01% impact to the remaining flows and no further hydrological investigations are necessary based on the quantities of uses and the different types of water uses). Therefore, there are no adverse impacts anticipated to existing water rights by issuing a Permit to Appropriate Water to the Donlin Gold, LLC for this mining project. Due to the distance between the Donlin Mine area and the closest senior Water Right holders as well as the different nature of the respective water uses between these senior water rights and the Donlin

water rights, it has been determined that issuing the full set of Water Right Permits to Appropriate Water will not unduly affect the rights of any prior appropriators (including reservations of water), as “unduly affected is defined in 11 AAC 93.970 (38); nor are there any applications for water rights or reservations of water in the area that require further consideration on account of such use per AS 46.15.080 (a)(1).

**Proposed means of diversion or construction (AS 46.15.080(a)(2)):**

The proposed means of construction are adequate. Review of materials submitted by the applicant, including values, and calculations used to support the application are within accepted standards and a valid for mining uses. The applicant has conducted numerous studies for various permitting needs that details the phases of construction and design methods to be implemented. Design parameters for the water uses have been provided by the applicant. The Dam Safety Unit will be in charge of all dam designs and parameter requirements. Any issuance of Permits to Appropriate Water do not supersede any Dam Safety requirements. Construction of dam structures are not authorized in a Permit to Appropriate Water. Any issued Permits to Appropriated Water do so with the intent to permit water withdrawals that are needed for geotechnical work or supporting operational work in support of Dam Safety technical investigations related to obtaining any Dam Safety Approvals to Construct any proposed dam or Approvals to Operate any proposed dam. The intent is also to allow water use required for addressing technical requirements that arise under permits or authorizations of other federal, state or local agencies that may occur as a result of assessments that occur during the phased development of the Donlin Project. Accordingly, the applicant has been made aware of the risk that changes to the project scope that arise as a result of the reevaluation of the project by multiple agencies at the various stages and phases of the project may result in increases to the overall water use requirements. Such increases would then necessitate amendments to any issued permits and such amendments would then require public notice of the proposed changes.

**Proposed use of water (AS 46.15.080(3)):**

This proposed beneficial use of water is essential for the safe and successful operation of the proposed Donlin Gold Mine. The water sources to be developed will be beneficially used for mining and milling processes and treatment for discharge. Water uses include diversions and pump back systems to avoid mine contact water and remain in compliance with the Clean Water Act. The applicant’s proposed water use information is described below:

**LAS 29168 Upper Contact Water Dam – American Creek**

The Upper Contact Water Dam will be constructed for impoundment and withdrawal of water. The source of water for these activities is American Creek. The planned impoundment will result in a year-round reservoir with a holding capacity of 3,240-acre feet (AF). Water use activities will also include the year-round withdrawal of water in the amount of 14,210-acre feet per year (AFY). Water withdrawals from the reservoir will be required for mill processing water, watering for dust control, fire training and fire suppression, and water for the Water Treatment Plant (WTP). Water return flow for the WTP treated water will have an established discharge location in the Southwest area of Crooked Creek. Water uses from the Upper Contact Water Dam reservoir are to be appurtenant

to the Mine Area and managed according to the Donlin Gold Water Resources Management Plan, Plan of Operations Vol. II.<sup>1</sup>

#### LAS 29169 Snow Gulch Freshwater Dam

Snow Gulch freshwater dam is planned to be constructed to impoundment and withdrawal of water. The source of water for these activities is Snow Gulch. The planned impoundment will result in a year-round freshwater reservoir with a holding capacity of 3,243 AF. These activities will also include the year-round withdrawal of water in the amount of 12,785 AFY. Water withdrawals from the freshwater reservoir will provide mill processing water, water for dust control, fire training, and fire suppression. Water uses from the freshwater reservoir are to be appurtenant to the Mine Area, and managed according to the Donlin Gold Water Resources Management Plan, Plan of Operations Vol. II.

#### LAS 29170 Lower Contact Water Dam – American Creek

Case file LAS 29170 was assigned for the Lower Contact Water Dam for impoundment and withdrawal of water. The source of water for these activities is American Creek and tributaries in S. 25-27, 34-36, T. 23 N., R. 49 W.; S. 31, 32, T. 23 N., R. 48 W.; S. 1-3, T. 22 N., R. 49 W.; S. 5-8, T. 22 N., R. 48 W.; SM. The planned impoundment will result in a year-round reservoir with a holding capacity of 7,151 AF in S. 1 and 2, T. 22 N., R. 49 W., SM. These activities will also include the year-round withdrawal of water in the amount of 32,581 AFY. Water withdrawals from the reservoir will provide mill processing water, water for dust control, fire training and fire suppression, and water for the WTP and discharge to Crooked Creek. Water return flow to Crooked Creek from the WTP discharge is in the Southwest (SW) ¼ of S. 3, T. 22 N., R. 49 W., SM. Water uses from the Lower Contact Dam reservoir are to be appurtenant to the Mine Area, and managed according to the Donlin Gold Water Resources Management Plan, Plan of Operations Vol. II.

#### LAS 29171 Jungjuk Port Site Surface Water – Kuskokwim River

Case file LAS 29171 was assigned for the Jungjuk Port Site surface water withdrawal from the Kuskokwim River. The source of water for these activities is the Kuskokwim River in NW ¼ S. 29, T. 20 N., R. 49 W., SM. The planned water withdrawals are for seasonal use (May – October) of 637 AFY (568,677 gpd or 0.9 cfs) for dust control along the 30-mile Donlin-Jungjuk access road and for fire training and suppression. The water will be withdrawn and stored in a climate controlled above ground water storage tank. Water uses are to be appurtenant to the Port and Road Area.

#### LAS 29172 Construction Camp, Shop, Administrative Facilities, Warehouse, & Mill

Case file LAS 29172 was assigned to water withdrawal activities to provide potable water for the mine facilities (i.e., public water system servicing the construction camp, shop, office, warehouse, mill and other mine structures). The source of water for these activities is a groundwater well field in S. 10 and 11, T. 22 N., R. 49 W., SM. The planned water withdrawals are for year-round use of 201 AFY. The water will be withdrawn and may be stored in a climate controlled above ground water storage tank. Water uses are appurtenant to the Mine Area and managed according to the Donlin Gold Water Resources Management Plan, Plan of Operations Vol. II.

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<sup>1</sup> see <http://dnr.alaska.gov/mlw/mining/largemine/donlin/pdf/poo.watermanagement.pdf>.



### LAS 29173 Pit Perimeter and In-Pit Dewatering Wells and Associated Drainage Structures

Case file LAS 29173 was assigned for dewatering activities of the mining pit areas. The source of water for these activities is groundwater well fields and horizontal drains in S. 25-27, 34-36, T. 23 N., R. 49 W., and S 1-3, and 12, T. 22 N., R. 49 W., SM. The planned water withdrawals are for year-round use of 3,871 AFY. The water withdrawn will be used for dust control of the mine site, mill processing water, water for the WTP and discharge to Crooked Creek, and fire suppression and training. Water return flow to Crooked Creek from the WTP discharge is located in the SW ¼ of S. 3, T. 22 N., R49 W., SM. Water uses are to be appurtenant the Mine Area and managed according to the Donlin Gold Water Resources Management Plan, Plan of Operations Vol. II.

### LAS 29174 Getmuna Creek Surface Water

Case file LAS 29174 was assigned for Getmuna Creek surface water withdrawal. The source of water for these activities is Getmuna Creek in S. 34, T. 21 N., R. 50 W., SM. The planned water withdrawals are for seasonal use (May – October) of 80 AFY for dust control along the 30-mile Donlin-Jungjuk access road and for fire training and protection. Water uses are to be appurtenant to the Port and Road Area.

### LAS 29175 TSF Interceptor and Seepage Collection Wells – Anaconda Creek

Case file LAS 29175 was assigned for the Tailings Storage Facility (TSF) Interceptor and Seepage Collection Wells. A Seepage Recovery System (SRS) would be installed as part of the lined TSF dam. The SRS would incorporate a seepage collection pond, seepage monitoring/collection wells, and compliance monitoring wells. The seepage collection pond, located at the toe of the TSF, would be the collection point of surface and groundwater that enters the TSF underdrains, which includes potential seepage from the lined TSF, as well as any surface water runoff that seeps through the downstream face of the TSF dam. The SRS collection pond is in S. 14, T. 22 N., R. 29 W. and is sized to provide storage for 16.3 AF. The monitoring/interceptor wells would be installed downstream of the seepage collection pond. These interceptor wells would be pumped if routine water monitoring detected a TSF seepage water signature above action levels. The source of water for these activities is a groundwater well field, surface water and the underdrain system in S. 11- 14, T. 22 N., R. 49 W., and S. 7, 8, 17-20, T. 22 N., R. 48 W., SM. The planned water withdrawals are for year-round use of 2,841 AFY. The water withdrawn will be used for mill processing water, dust control, fire suppression and training, and water for the WTP and discharge to Crooked Creek. Water return flow to Crooked Creek from the WTP discharge is located in the SW ¼ of S. 3, T. 22 N., R49 W., SM. Water uses are to be appurtenant to the Mine Area and managed according to the Donlin Gold Water Resources Management Plan, Plan of Operations Vol. II.

### LAS 29176 Jungjuk Port Site Well

Case file LAS 29176 was assigned for the Jungjuk Port Site Well. Water requested is to provide potable water to onsite personnel. The source of water for these activities is a groundwater well within NW ¼ S. 29, T. 20 N., R. 49 W. SM. The planned water withdrawals are for seasonal use (May – October) of 0.55 AFY. The water use location and area of appurtenance is to be within NW ¼ S. 29, T. 20 N., R. 49 W. SM.

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### LAS 29177 Tailings Storage Facility – Anaconda Creek

Case file LAS 29177 was assigned for the Tailings Storage Facility (TSF) for the impoundment of surface water, and process wastewater from the mill in S. 11-14, T. 22 N., R. 49 W., and S. 7, 8, 17-20, T. 22 N., R. 48 W., SM. The planned impoundment will result in a year-round reservoir with a holding capacity of 24,000 AF. The planned water withdrawals are for year-round use of 39,065 AFY. The water withdrawn from the TSF will be used for mill processing water, dust control, and water for the WTP and discharge to Crooked Creek. Water return flow to Crooked Creek from the WTP discharge is located in the SW ¼ of S. 3, T. 22 N., R49 W., SM. Water uses are to be appurtenant to the Mine Area and managed according to the Donlin Gold Water Resources Management Plan, Plan of Operations Vol. II.

### LAS 29178 Permanent Camp Potable Water Well Field

Case file LAS 29178 was assigned for the establishment of potable water source for the permanent camp. The source of water is groundwater from wells in S. 8, T. 22 N., R. 49 W., SM. The planned water withdrawals are for year-round use of 50 AFY. Water withdrawn will be used as the source of portable water for the camp public water system, and for fire training and suppression. Water uses are to be appurtenant to S. 8, T. 22 N., R. 49 W., SM.

### LAS 31477 Crooked Creek Surface Flows and Associated Diversion Structures

Case file LAS 31477 was assigned to surface water that will be removed from Crooked Creek and tributaries above the confluence of Crevice Creek from water management activities at the Donlin Gold Mine. Water in Crooked Creek would be removed through loss of surface water due to dewatering wells, reduction of groundwater discharge to Crooked Creek intercepted by dewatering wells, and retention of surface water runoff from the Crooked Creek drainage and its tributaries (i.e., Ruby Gulch, Queen Gulch Drainage, American Creek Drainage, Omega Creek drainage, Snow Gulch and Anaconda drainage). These surface and groundwater sources are located in S. 23-28, 33-36, T. 23 N., R. 49 W.; S. 30-32, T.23 N., R.48 W.; S. 1-5, 8-15, 17-18, 22-24, T.22 N., R.49 W.; and S. 4-9, 17-20, T.22 N., R.48 W.; all in SM. The volumes of surface water removed from Crooked Creek will vary throughout the approximate 27-year mine life. The flow reduction in Crooked Creek is estimated to be a annual maximum reduction of 26,063 AFY. Water uses include storage, dewatering, mill processing, dust control, potable water, fire training and suppression, and supply water for the WTP prior to discharge into Crooked Creek. Water return flow to the Crooked Creek from open pit dewatering, the Upper and Lower Contact Water Dams, the TSF Seepage Recovery System, and the Tailings Dam will be from the WTP discharge located in the SW ¼ of S. 3, T. 22 N., R49 W., SM. Water return flow to Crooked Creek from the Snow Gulch Freshwater Dam will be from the dam spillway which discharges to lower Snow Gulch, located in Northeast ¼ of S. 25, T. 23 N., R. 49 W., SM. Water uses are to be appurtenant to the Mine Area, and managed according to the current Donlin Gold Water Resources Management Plan, Plan of Operations Vol. II.

**Proposed appropriation is in the public interest (AS 46.15.080(a)(4)):**

It is interpreted that the proposed use of water is in the public interest (AS 46.15.080 (a)(4)) and that this file contains no evidence of a likelihood of harm to the public interest.

1. *Benefit to the applicant resulting from the proposed appropriation.* The criteria under AS 46.15.080, (as further defined under AS 46.15.260), was reviewed, considered and found that the statutory criterion is fully satisfied. Water use is for multiple purposes required for safe and responsible gold mining for the proposed Donlin Gold Mine. Water use is also subject to a Water Management Plan as well as the requirements of the Final Environmental Impact Statement (FEIS).
2. *Effect of the economic activity resulting from the proposed appropriation.* The criteria under AS 46.15.080, (as further defined under AS 46.15.260), was reviewed and considered and found that the statutory criterion is fully satisfied. The use of water is for the proposed Donlin Gold Mine. The use of water will allow the landowners, (Alaska Native Claims Settlement Act (ANCSA) corporations, (and their shareholders), to develop their lands which will provide beneficial infrastructure, industry, and employment to the local economies. The potential economic impacts of the project would also impact the entire state as well, (Alaska State Constitution, Article 1; Section 1 and Article 8; Section 1).
3. *Effect on fish and game resources and public recreation opportunities.* The Alaska Department of Fish and Game (ADF&G) has worked closely and will have continued coordination with the Applicant for the life of the proposed mine. ADF&G working with Donlin Gold, LLC, have developed an Aquatic Resources Monitoring Plan (ARMP) to ensure the safety of fish and wildlife during the proposed development of the Donlin Gold, LLC. Included in this plan is the restoration of three streams previously damaged by historic placer mining. The following Fish Habitat Permits have been issued: Fish Habitat Permit for Crooked Creek outfall - FH18-III-0188; Fish Habitat Permit for Anaconda Creek tailings storage facility – FH18-III-0190; Fish Habitat Permit for American Creek waste rock facility and open pit – FH18-III-0191; Fish Habitat Permit for Ruby Gulch and Queen Gulch habitat reclamation – FH18-III-0192; Fish Habitat Permit for Snow Gulch habitat reclamation – FH18-III-0193. Each Fish Habitat Permit includes requirements to monitor changes to aquatic life as described in the ARMP. Water Quality and stream flow data for Crooked Creek will be collected near the project site. Adaptive management actions are required as part of the ARMP should adverse effects on aquatic life conditions be observed. It is also recognized that appropriations from sources in the Crooked Creek drainage will significantly reduce stream flow in the immediate vicinity of the project site, especially during winter months. A detailed evaluation of the impact of habitat loss due to depleted stream flow in Crooked Creek is provided in Section 3.13 of the Final Environmental Impact Statement for the project. Flow prediction modeling coupled with a 2009 fish survey indicate that during winter months (low flow conditions), 4% of the salmon redds (as observed in 2009), would be outside the wetted channel from downstream of American Creek. Consistent with the Joint Record of Decision (JROD), issued by the U.S. Army Corps of Engineers and the Bureau of Land Management, it is determined that the project would not cause significant degradation to fish and game resources. Additionally, public recreational opportunities would not be adversely affected from the proposed appropriations, as

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there is no known recreational use occurring within the project area. Therefore, it is determined that there will be no adverse effect to the fish and game resources nor the public recreational opportunities from the proposed appropriations.

4. *Effect on public health.* The criteria under AS 46.15.080 was reviewed, considered and found that the statutory criterion is fully satisfied. The Alaska Department of Environmental Conservation has issued a Certificate of Reasonable Assurance (POA-1995-120, Crooked Creek) under Section 401 of the Federal Clean Water Act (hereafter 401 Cert), to address water quality concerns. Public Health can take many forms or meanings, one form being the emotional, physical and psychological impacts of poverty, as well the same impacts due to cultural or environmental change. Determining what is in the public interest under Alaska Water Law is inherently a balancing act between perceived and potential risks and perceived and potential benefits. Large mine projects are not “one and done” in any single decision, but determined by multiple agencies at multiple points over the entire course of a project. All any permit to appropriate water can legally do under Alaska Water Law is allow beneficial water use, to the extent that the permit holder has the appropriate permits to do stated activity. This is what is meant by “subject to” in the language of any permit. This is also the intent and purpose behind the “permit” phase of a water right. The right and opportunity to use the water as a resource in working out the kinks in a project. Therefore, it is determined that the issuance of a Permit to Appropriate Water will have no immediate effect on public health and any potential impacts will be addressed thru the appropriate multiple (and multi-year), regulatory processes, (which the permittee will be subject to under Condition 3 of any issued Permit to Appropriate Water).
5. *Effect of loss of alternate uses of water that might be made within a reasonable time if not precluded or hindered by the proposed appropriation.* The criteria under AS 46.15.080 was reviewed, considered, and found that the statutory criteria are fully satisfied. There are no other water uses, (specific to the jurisdiction of AS 46.15), that would practically be making use of the proposed water sources, as a resource, as there remains access to water sources downstream of the proposed mine.
6. *Harm to other persons resulting from the proposed appropriation.* The criteria under AS 46.15.080 was reviewed and considered. While there are expected to be impacts to the Crooked Creek drainage as a result of the proposed 12 appropriations, the impacts would primarily be limited to waters in the project area, with the largest flow reductions occurring in the 20<sup>th</sup> year of actual mining operations. Losses, therefore, are not immediate and the Aquatic Resources Monitoring Plan is designed to utilize adaptive management to address impacts that exceed the plans baseline. As local use and subsistence use is commonly done at the lower reaches of Crooked Creek there are no local residents who will be harmed by any potential loss of use the waters of this drainage as a result of these proposed appropriations. It is determined that there will be no undue harm to other persons resulting from the proposed appropriations based on evaluation of available data.
7. *Intent and ability of the applicant to complete the appropriation.* The criteria under AS 46.15.080 was reviewed, considered and found that the statutory criterion is fully satisfied. The systems are currently being constructed as part of the initial phase of mine construction.

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8. *Effect upon access to navigable or public water.* The criteria under AS 46.15.080 was reviewed, considered and found that the statutory criterion is fully satisfied for purposes of developing the sources of water described in this Review and Determination. The applications pertain to a mine site located on privately-accessed land in an uplands area. Therefore, the appropriation will have no effect upon access to navigable or public water.

**Duplicate Water Use:** Donlin Gold, LLC currently is authorized temporary water use under Temporary Water Use Authorizations TWUA F2020-016; TWUA F2020-017; TWUA F2020-018 and TWUA F2020-019. Upon issuance of any Permits to Appropriate Water for the Donlin Project, any water use authorized under Temporary Water Use that is duplicating water use permitted under any Permit to Appropriate Water will be amended per the terms of the applicable Temporary Water Use Authorization.

**Determination:**

DNR, Water Resources Section will issue Permits to Appropriate for LAS 29168, LAS 29169, LAS 29170, LAS 29171, LAS 29172, LAS 29173, LAS 29174, LAS 29175, LAS 29176, LAS 29177, LAS 29178, & LAS 31477. It is interpreted that the use of water is in the public interest. Donlin Gold, LLC. has provided sufficient evidence to support that the permit holder has full intent on beneficially using the quantity of water to be permitted for appropriation. The permit holder will be required to adhere to all permit conditions including, but not limited to:

- Comply with all applicable State and Federal laws, regulations, and conditions.
- Allow grantor's authorized representatives to inspect, at reasonable times, any facilities, equipment, practices, or operations regulated or required under this permit and certificate.

**Recommendation: Application for Water Rights to Permits to Appropriate Water**

Concurrence     Other : \_\_\_\_\_



Signature

April 26, 2021

Date

Tom Barrett, Natural Resource Manager III

A person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of "issuance" of this decision, as defined in 11 AAC 02.040(c) and (d), and may be mailed or delivered to the Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska, 99501; faxed to 907-269-8918, or sent by electronic mail to [dnr.appeals@alaska.gov](mailto:dnr.appeals@alaska.gov). This decision takes effect immediately. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31<sup>st</sup> calendar day after issuance. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources. Under 11 AAC 02.030, appeals and requests for reconsideration filed under 11 AAC 02 must be accompanied by the fee established in 11 AAC 05.160(d)(1)(F), which has been set at \$200 under the provisions of 11 AAC 05.160 (a) and (b).

**ALASKA DEPARTMENT OF NATURAL RESOURCES**

**Water Resources Section**

Addendum to Review and Determination & Public Interest Finding

Donlin Gold, LLC Water Rights

LAS 29168, LAS 29169, LAS 29170, LAS 29171, LAS 29172, LAS 29173, LAS 29174, LAS 29175,  
LAS 29176, LAS 29177, LAS 29178, & LAS 31477

A High-level Review of the Donlin Gold Mine Project by the Alaska Hydrologic Survey for the express purpose of transitioning from the jurisdiction of Alaska Statute 46.15 to that of Alaska Statute 46.17 (Dam Safety Program)

Please note that such a transition will not be fully effective until Donlin Gold, LLC submits an Application for Certificate of Approval to Construct, Modify, Remove, or Abandon a Dam



# MEMORANDUM STATE OF ALASKA

Department of Natural Resources

Department of Natural Resources  
Division of Mining, Land and Water  
Water Resources Section

TO: Henry Brooks  
NRM II

DATE: April 28, 2021

TELEPHONE: 269-8646

FROM: Kevin Petrone  
Hydrologist IV

SUBJECT: Donlin Water Rights

Donlin Gold, LLC (Donlin) has proposed to develop a large open pit, hardrock gold mine located approximately 10 miles north of Crooked Creek, Alaska. The Water Section of the Department of Land and Water (DMLW) requested an overview of the Water Rights Applications by a hydrologist within the Alaska Hydrologic Survey (AHS). During the active operating period of the mine, the process plant requires an average water supply of 18,000 gpm (40 cfs). Water will be withdrawn from Snow Gulch FWD, Upper CWD and Lower CWD (from American Creek), and the Anaconda TSF and SRS to meet the needs of the process plant. Overall, water will be removed from Crooked Creek by the reduction of groundwater discharge intercepted by dewatering wells, and the retention of surface water runoff from the Crooked Creek drainage and its tributaries. Water will be returned directly to Crooked Creek from the water treatment plant (WTP), and TSF diversion channels which will enter into Anaconda Creek and ultimately flow to Crooked Creek.

The case files for each Water Right application are listed below with a short summary of the impoundments or withdrawals from the ADNR public notice. Below these descriptions, the hydrologic basis (hydrologic modelling or runoff estimates) used to determine storage volumes or withdrawal rates for each Water Right application are shown. These modelling or runoff estimates were obtained from the Donlin 2017 Water Resources Management Plan and the Donlin Water Management Overview presentation from August 26, 2020. Lastly, my comments on water sources and availability are included in italics. My calculations for water availability assume 14 inches of runoff depth (0.7 runoff ratio from 20 inches of annual precipitation) from Crooked Creek and its tributaries. For example, American Creek (6.8 sq miles or 4324 acres = 5045 afy = annual runoff of 7 cfs for year or 13.4 cfs from May-September assuming that 80% of runoff occurs during the May-Sept period).

**LAS 29168: Upper Contact Water Dam American Creek** is for the year-round impoundment of 3,240 afy and withdrawal of 14,210 afy of water. The source of water is American Creek and tributaries. Water withdrawals are for mill processing water, dust control, fire training and fire suppression, and water for the Water Treatment Plant (WTP). Storage volume is based on sensitivity analyses with the watershed balance model (WBM). Water use (14,210 afy = 20 cfs) is based on the 2011 WBM simulations (average over the life of mine).

*Comment: Since American Cr is less than 6.8 sq miles at Upper CWD, 20 cfs may be available during periods of the open water season but not year-round.*

**LAS 29169: Snow Gulch Freshwater Dam** for the year-round impoundment of 3,243 afy and withdrawal of 12,785 afy of water. The source of water for these activities is Snow Gulch and tributaries. Water withdrawals from the freshwater reservoir will provide mill processing water, water for dust control, fire training, and fire suppression.

The storage volume is based on watershed balance model (WBM) simulations. Water use is based on the maximum pumping rate to the process plant (WMP). The withdrawal rate (12,785 afy) is approximately 18 cfs.

*Comment: Since the Snow Gulch drainage is only 1560 acres (2.4 sq miles), 18 cfs may only be available during peak flows.*

**LAS 29170: Lower Contact Water Dam American Creek** is for the year-round impoundment of 7,151 afy and withdrawal of 32,581 afy (45 cfs) of water. The source of water for these activities is American Creek and

tributaries. Water withdrawals from the reservoir will provide mill processing water, water for dust control, fire training and fire suppression, and water for the WTP.

Storage volume is based on containing the 99<sup>th</sup> percentile runoff accumulating during the first half of the construction period (3,283 AF) plus the 24-hour PMP (13.5") runoff of 3,867 AF = 7,151 AF. Water use is based on the 2011 WBM simulations (average over the life of mine).

*Comment: Since American Cr is ~6.8 sq miles at Lower CWD, 32,581 afy or 45 cfs may only be available during high flow periods of the open water season.*

**LAS 29171: Jungjuk Port Site Surface Water Kuskokwim River** surface water withdrawal of 637 afy from the Kuskokwim River for seasonal use (May – October). The source of water is the Kuskokwim River. The planned water withdrawals are for dust control along the 30-mile Donlin-Jungjuk access road and for fire training and suppression.

*Comment: This water withdrawal (637 afy = 1 cfs) is a small volume relative the flow of the Kuskokwim River (> 50,000 cfs during May -Sept period).*

**LAS 29172: Construction Camp, Shop, Administrative Facilities, Warehouse, & Mill** is for year-round water withdrawal of 201 afy to provide potable water for the mine facilities (i.e., public water system servicing the construction camp, shop, office, warehouse, mill and other mine structures). The source of water for these activities is a groundwater well field.

*Comment: The groundwater well field will supply 201 afy, equivalent to 125 gpm from a well field. This water quantity will be available if aquifers have sufficient water yield. Pump tests can confirm water availability.*

**LAS 29173: Pit Perimeter and In-Pit Dewatering Wells and Associated Drainage Structures** is for dewatering of the mining pit areas for year-round use of 3,871 afy. The source of water for these activities will be groundwater dewatering well fields and horizontal drains. The water withdrawn will be used for dust control, mill processing water, and fire suppression and training.

Water use includes water from dewatering wells drawn from Crooked Creek through the stream bed and includes surface water and groundwater from the project area that will be beneficially used or impounded for mine-related purposes that would otherwise discharge to Crooked Creek.

*Comment: The groundwater well field will supply 3871 afy, equivalent to 2400 gpm from a well field. This water quantity will be available if aquifers have sufficient water yield. Since the main objective is to dewater the aquifer and pit perimeter, water availability is not the primary concern. Pump tests can confirm water availability and dewatering efficiency.*

**LAS 29174: Getmuna Creek Surface Water withdrawal** for seasonal use (May – October) of 80 afy. The source of water for these activities is Getmuna Creek. The planned water withdrawals are for dust control along the 30-mile Donlin-Jungjuk access road and for fire training and protection.

*Comment: This is relatively small volume of water (80 afy = 0.11 cfs) from a surface water source. The drainage area of Getmuna Cr is not provided in the Donlin 2017 WRM Plan, but can be calculated from the USGS Watershed Boundary Dataset (WBD).*

**LAS 29175: TSF Interceptor and Seepage Collection Wells Anaconda Creek** is for the establishment of the Anaconda Creek Drainage Interceptor wells and Seepage Recovery System (SRS). The SRS would be installed as part of the lined TSF for the year-round collection of 2,841 afy or 4 cfs.

Water use is based on maximum pump rate to process plant/TSF. Inflow estimates based on combination of WBM and groundwater modelling.

*Comment: Anaconda Cr drainage area is 7.6 sq miles and adequate to support 4 cfs water withdrawal.*

**LAS 29176: Jungjuk Port Site Well** will provide water for seasonal use (May – October) of 0.55 afy to provide potable water to onsite personnel. The source of water for these activities is a groundwater well.

*Comment: This is small volume of water (0.55 afy = 0.3 gpm or 0.001 cfs) from a groundwater well.*

**LAS 29177: Tailings Storage Facility Anaconda Creek** is for a year-round reservoir with a holding capacity of 24,000 afy of surface water and process wastewater from the mill, and year-round water withdrawals of 39,065 afy or 54 cfs.



Storage volumes are based on containing the 100-year return period snowmelt (WBM simulations). Water use is based on the 2011 WBM simulations (dam + channel diversions).

*Comment: Anaconda Cr drainage area is 7.6 sq miles and may only support 54 cfs during high flow periods of the open water season.*

**LAS 29178: Permanent Camp Potable Water Well Field** for year-round use of 50 afy for the establishment of potable water source. The source of water is groundwater from wells.

*Comment: The groundwater well field will supply 50 afy, equivalent to 31 gpm from a well field. This water quantity will be available if aquifers have sufficient water yield. Pump tests can confirm water availability.*

**LAS 31477: Crooked Creek Surface Flows and Associated Diversion Structures** for the projected flow reduction in Crooked Creek and its tributaries estimated to be an annual maximum reduction of 26,063 afy. Volumes that may be removed from Crooked Creek and its tributaries, including water in Crooked Creek may be removed through loss of surface water due to dewatering wells, reduction of groundwater discharge to Crooked Creek intercepted by dewatering wells, and retention of surface water runoff from the Crooked Creek drainage and its tributaries. Water uses include dewatering, mill processing, dust control, potable water, fire training and suppression, and WTP.

*Comment: It is unclear exactly where or when the 26,063 afy (36 cfs) volume of water will be removed from Crooked Creek and how this withdrawal will affect the Crooked Cr during low flow or baseflow periods. Crooked Cr mean daily flows at USGS gage site (330 sq miles) are 401 cfs and lowest baseflows during winter are less than 50 cfs. Donlin provides drainage area of 108 sq miles at mine site so mean daily flows can be expected to be one-third of the USGS gaging station. Therefore, Crooked Cr mean daily flow is likely 130 cfs and baseflow may be less than 15 cfs. Based on these preliminary calculations, a continuous withdrawal of 26,063 afy (36 cfs) in addition to the 3,871 afy or 5 cfs (LAS 29173 from above) may result in no flow periods for Crooked Creek during the winter baseflow period.*